AASHTO
Committee on Transportation System Operations (CTSO) Update

July 23, 2018
CTSO - Strategic Planning Workshop
November 2017, Beckman Center

• Initial Strategic Planning conducted though a Task Force of CTSO members
• Moving forward to convene the various groups to gather input and complete goals, purpose statements, and actions items
• Recruiting for volunteers – from CTSO membership and others in your organization – to actively participate in subcommittees/working groups
CSTO Strategic Focus
Purpose: Focus on transportation operations and emerging technology with a goal of improving safety, system reliability, and highway system performance.

7 - Goals:
• Advance the state of practice and deployment of operation systems.
• Advance the state of practice and performance of traffic incident management nationally.
• Facilitate the safe, efficient movement of freight by truck and promote national coordination of federal freight movement mandates.
• Implement in state DOTs best practices in system integration, operability, standards, and cybersecurity.
• Integrate new and emerging CAV technology to improve safety, increase reliability, preserve infrastructure, and reduce congestion.
• Ensure that existing communication technologies remain available for transportation departments and capture the benefits of new and emerging communication technologies.
• Increased standardization and consistency of ITS deployment and the modernization of technologies and their integration into agency operations.
CTSO – Organizational Structure
Chair: Bill Panos, WY  Vice-Chair: Russ Buchholz, ND

Committee on Transportation Systems Operations

Subcommittee on Operations
- Working Group on Operations Strategies
- Working Group on Traffic Incident Management
- Working Group on Freight Operations

Subcommittee on Technology
- Working Group on Systems Integration
- Working Group on Communications Technology
- Working Group on Connected and Automated Vehicles
- Working Group on Intelligent Transportation Systems

Subcommittee on Performance Management and Data
- Working Group on Freight Operations

Research Development and Implementation Coordinators
- Community of Practice on Road Weather Management
External Partners

- USDOT (FHWA, ITS JPO, NHTSA, Volpe)
- State DOTs, L.A., MPOs
- National Operations Center of Excellence (NOCoE)
- ITS America
- TRB
- ITE

CTSO
**Subcommittee Purpose:**

*Advance the state of practice relative to System Operations programs and strategies, Freight Operations, and Traffic Incident Management across State DOT’s*

<table>
<thead>
<tr>
<th>Operations Working Groups</th>
<th>Co-Chairs</th>
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</thead>
</table>
| Operations Strategies                      | • Brent Cain, AZ  
• Sue Porter, MN                             |
| Freight Operations                         | • Matt Hedge, PA  
• Dave Huft, SD                                |
| Traffic Incident Management                | • Tim Lane, AZ  
• Joey Sagal, MD                               |
Subcommittee Purpose:
Focus on the technology that supports Transportation System Operations through policy, standards, sharing best practices and deployment guidance.

<table>
<thead>
<tr>
<th>Technology Working Groups</th>
<th>Co-Chairs</th>
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<tbody>
<tr>
<td>Systems Integration</td>
<td>• Collin Castle, MI</td>
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<td></td>
<td>• Robert Cunningham, DE</td>
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<td>Communications Technology</td>
<td>• Paul Gilbert, TX</td>
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<td></td>
<td>• Ferdinand Milanes, CA</td>
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<tr>
<td>Connected and Automated Vehicles</td>
<td>• Blaine Leonard, UT</td>
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<td></td>
<td>• Greg Larson, CA</td>
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<td>Intelligent Transportation Systems (ITS)</td>
<td>• Raj Ponnaluri, FL</td>
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<td>• Brian Simi, CA</td>
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Subcommittee Purpose:

Engage with CTSAO Subcommittees and Work Groups to understand and fulfill their needs with respect to data, analytics and performance management techniques. Assist AASHTO members in compliance with MAP-21 performance measurement rules and regulations regarding systems operations and freight performance, and advocate for the collective concerns within the AASHTO community.
Community of Practice on Road Weather Management
Lead: Steve Cook, MI

Purpose:

Promote the implementation of Road Weather Management (RWM) solutions and strategies that minimize the impacts of weather events on transportation system operations to increase safety and reliability.
Subcommittee Purpose:

Coordinate, support, and promote TSMO-related research through the development of research problem statements, prioritization of research needs, implementation of research products, and dissemination of research results.
Transportation Systems Management & Operations (TSMO) Strategies and Solutions

- ITS Strategies
- CAV (infrastructure investment)
- Work Zone Management
- Traffic Incident Management
- Special Event Management
- Road Weather Management
- RWIS
- Transit Management
- Freight Management
- Traffic Signal Coordination & Performance
- Traveler Information
- Ramp Management
- Managed Lanes
- Active Traffic Management
- Integrated Corridor Management
- Variable Speeds Limits
- Truck Parking
- Harmonization Traffic Flow
- Improved Bicycle and Pedestrian Crossings
Hot Topics Nationally with TSMO

• NOCoE – looking at new state DOT maintenance initiatives
• FHWA Organizing and Planning for Operations – “What is TSMO?” (new as of June 2018)
• State DOT organizing for TSMO and developing strategic plans:
  • Staffing changes
  • Funding usage issues
  • O&M concerns as TSMO deployment increases
  • Jurisdictional issues
  • Balance between Capital Expansion/Rehabilitation and the need to integrate TSMO initiatives/technology - Safety and Travel Relativity needs – Managing Congestion and Mobility concerns

• DSRC vs. Cellular - V2X: DSRC is available now, Cell-V2X is emerging however; no standards exist, technology is untested, technology can’t operate legally in the 5.9 GHz spectrum.

• Data Sharing: DOT driven traveler info vs. sharing data with 3rd party traveler info providers (WAZE, Google, etc.).

• Signal Phase and Timing (SPaT) Challenge: AASHTO initiative challenging states to broadcast SPaT at 20 intersections by 2020 using DSRC.

• CAV Data Use: States are finally trying to start figuring out applications of CAV in DOT business processes.

• Signal Performance Monitoring: Being deployed all over the country.

• Active Traffic Mgt Strategies: Has the potential to have great benefits for safety and reliability. But the cost of Capital and O&M is quite high.
Workshops/Educating for TSMO

• SHRP2 L06 Capability Maturity Model (CMM) Workshop Results – Feb. 2013¹
• FHWA TOPS B/C Tool Training – April 2015 and May 2018²
  • Use 23 Flex Route and other proposed TSMO projects
• SHRP2 L06 SEMTOC CMM Workshop – Sept. 2015¹
• FHWA ATM/ATDM Workshop – Dec. 2015²
• FHWA Ramp Metering Workshop – March 2017²
  • Modeling and B/C in progress – reliability value-add
• Working close with AASHTO, NOCoE, other state DOTs

1. With FHWA (SHRP2 L06 Program)
2. With FHWA
### TSMO Strategic Business Plan Strategies

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<th>Business Processes</th>
<th>Systems &amp; Technology</th>
<th>Performance Management</th>
<th>Culture</th>
<th>Organization/Workforce</th>
<th>Collaboration</th>
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### TSMO Business Plan Strategic Actions

- **Business Process**
  - Planning, Programming, Budgeting, Implementation
- **Systems & Technology**
  - Systems Engineering, Standards & Interoperability
- **Performance Management**
  - Measures, Data, Analytics & Utilization
- **Culture**
  - Technical Understanding, Leadership, Outreach, and Program Authority
- **Organization/Workforce**
  - Structure and Capability Development
- **Collaboration**
  - Partnership with Other Public & Private Entities

#### 2-3 SMART Action Items Each
Michigan DOT TSMO web page

www.Michigan.gov/TSMO

- Brief TSMO explanation and summary of benefits
- Includes 5 - Business Cases explaining TSMO to various audiences
- TSMO Implementation and Strategic Plan
- Relevant operational internal and external links
Tired of Sitting in Traffic? Us too.

The Michigan Department of Transportation (MDOT) is implementing innovative solutions that reduce congestion and increase safety simply by improving the day-to-day operations of the roads we’ve already built. These solutions use advanced technologies and partnerships to increase mobility, reliability, and safety. Cost-effective and quick to implement, they also provide high benefit-to-cost ratios when combined with traditional means of building and maintaining the state transportation system. Plus, these solutions build on and strengthen MDOT’s current longtime services, such as clearing crashes and plowing snow. Some examples of these solutions and their benefits are listed to the right.

Efficient commutes
Optimally timed traffic lights help motorists flow more smoothly through intersections. This traffic light harmonization can reduce travel times by 8 to 20 percent.

Reliable commutes
Michigan Traffic Incident Management Effort (Mi-TIME) provides important training on quickly and safely clearing incidents, decreasing delay by up to 45 percent.

Safer roads
 Technologies to safely manage construction zones help decrease the number of work zone crashes, injuries, and deaths on Michigan roadways.

Easier-to-use traveler information
MDOT’s Mi Drive website (www.michigan.gov/drive) and mobile app provide 24/7 traffic and incident information.

Michigan’s reputation as a leader
Planet M (www.planetm.com) promotes innovation in transportation mobility technologies across the state of Michigan.

Fewer wasted gallons of gas
Travelers won’t have to waste gasoline idling in congestion, enhancing livability and sustainability.

Better, faster, cheaper, safer, and smarter
These solutions allow MDOT to more cost-effectively reduce congestion, increase safety, and provide Michigan residents with noticeable benefits NOW.

To learn more about MDOT’s operational solutions, please visit: www.michigan.gov/mdot